FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

November 4 to November 10, 2012 (Week 45)

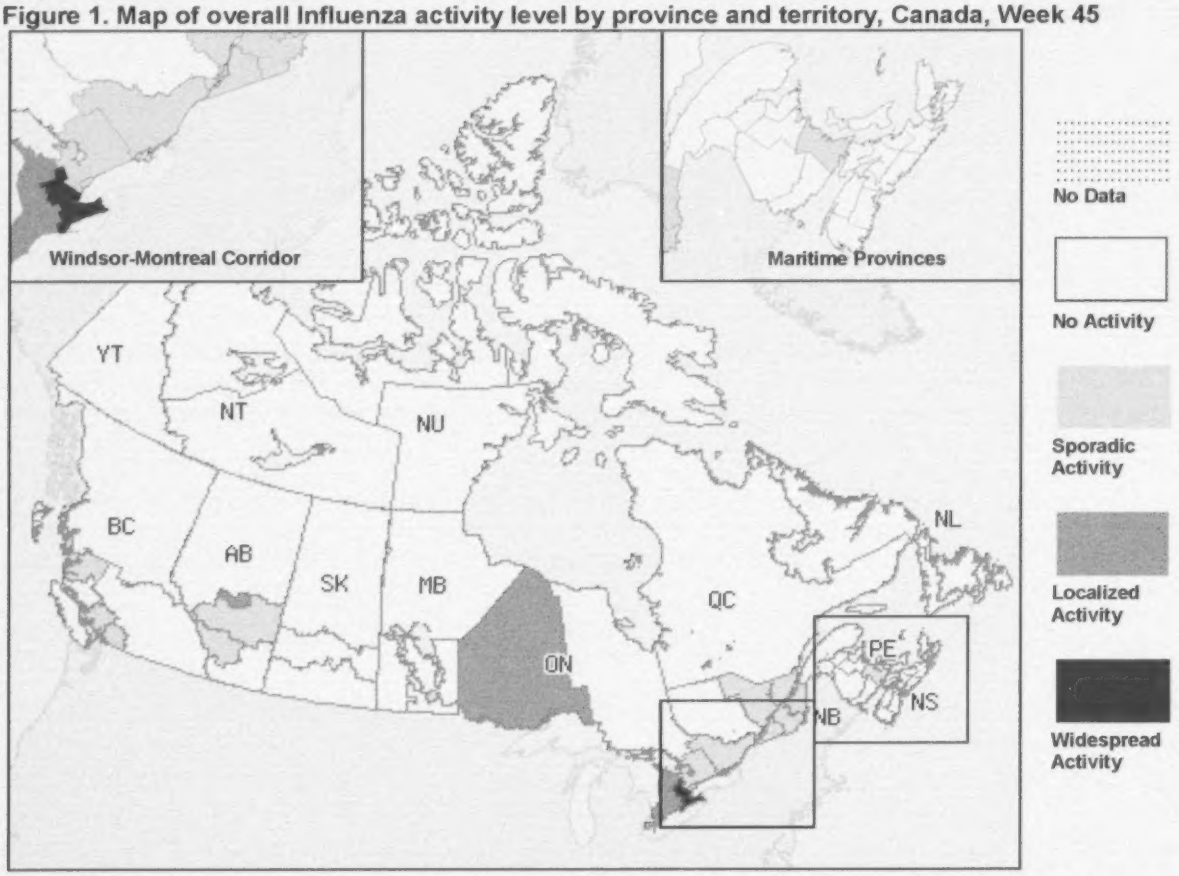
Overall Influenza Summary

- Influenza activity in Canada increased compared to the previous week with more regions reporting increased activity, particularly in Ontario; however overall activity in Canada still remains relatively low, with the majority of regions of the country reporting no activity.
- In week 45, a total of 106 laboratory detections of influenza were reported, of which 92.5% were for influenza A viruses, predominantly A(H3N2).
- Eight influenza outbreaks were reported in week 45: 5 in long-term care facilities and 3 in other settings.
- One influenza-associated hospitalization was reported through the IMPACT network, with influenza A from BC, and 16 influenza-associated hospitalizations in adults ≥20 years of age were reported through Aggregate surveillance.
- The ILI consultation rate decreased slightly in week 45 but is within the expected level for this time of year.

Influenza Activity (geographic spread) and Outbreaks

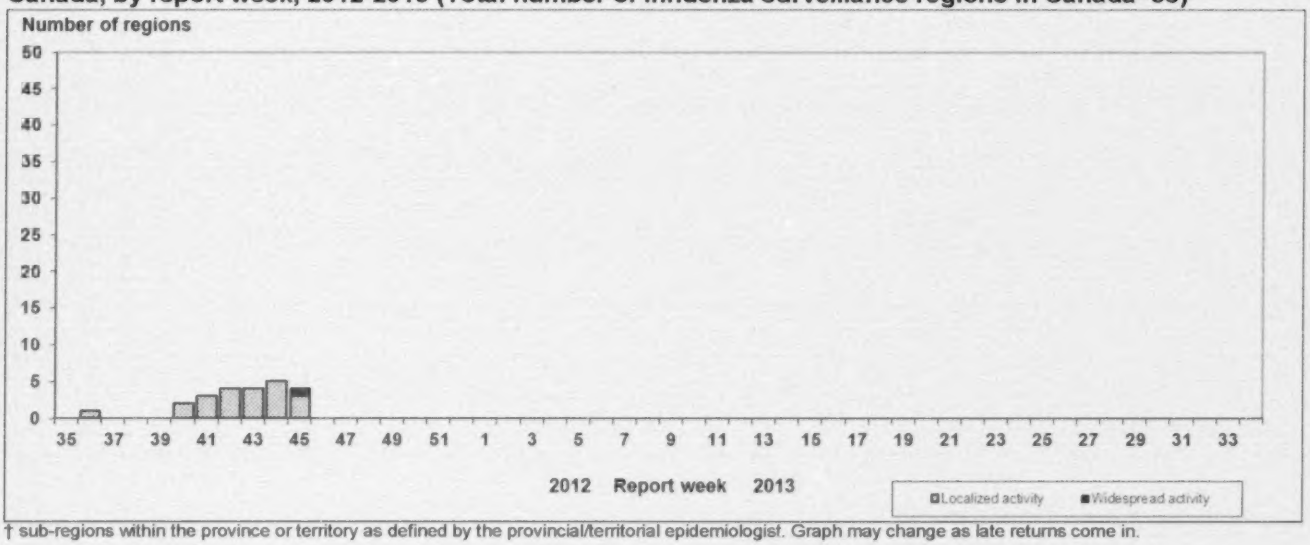
In week 45, 1 region [in ON] reported widespread activity, 3 regions [in AB(1), and ON(2)] reported localized activity, 13 regions [in BC(2), AB(2), MB(1), ON(3), QC(4) and NB(1)] reported sporadic activity and the rest reported no activity (Figures 1 and 2). Eight new influenza outbreaks were reported in week 45: 5 in long-term care facilities [in AB(3) and ON(2)] and 3 in other settings [in ON] (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 45



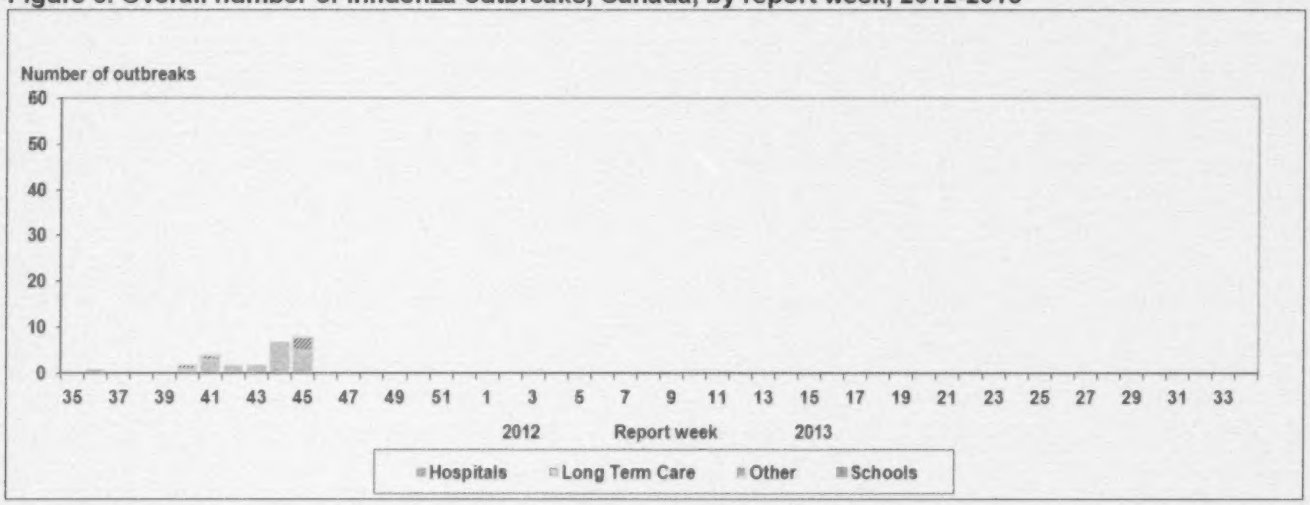
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from the previous week, from 2.8% in week 44 to 5.0% in week 45 (Figures 4 and 5). Among the influenza viruses detected this week (n=106), 92.5% were positive for influenza A viruses [of which 61.2% were A(H3), 6.1% were A(H1N1)pdm09, and 32.7% were A unsubtyped] and 7.5% for influenza B viruses (Table 1).

Cumulative influenza virus detections by type/subtype to date are as follows: 91.9% influenza A [65.7% A(H3), 5.6% A(H1N1)pdm09 and 28.7% A(unsubtyped)] and 8.1% influenza B (Table 1).

Detailed information on age and type/subtype was received for 168 cases to date this season (Table 2).The proportions of cases by age group were as follows: 13.7% were < 5 years; 8.3% were between 5-19 years; 14.3% were between 20-44 years; 15.5% were between 45-64 years of age; 48.2% were ≥ 65 years.

The percentage positive for rhinovirus detections increased slightly from the previous week, from 17.1% in week 44 to 19.1% week 45; and remains the highest compared to the other respiratory viruses. The percentage positive for the other respiratory viruses in week 45 remained low, although several increased slightly compared to week 44: RSV 4.1%; parainfluenza 3.9%; adenovirus 2.3%; hMPV 0.2%; and coronavirus 2.3% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	November 4 to November 10, 2012						Cumulative (August 26, 2012 to November 10, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	3	0	3	0	0	1	10	0	7	0	3	4
AB	38	0	31	1	6	1	99	0	80	8	11	3
SK	1	0	1	0	0	0	4	0	1	0	3	1
MB	3	0	3	0	0	1	7	0	6	0	1	1
ON	28	0	22	4	2	3	87	0	63	5	19	6
QC	24	0	0	0	24	2	41	0	6	0	35	7
NB	1	0	0	1	0	0	1	0	0	1	0	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	2	0	2	0	0	0
Canada	**98**	**0**	**60**	**6**	**32**	**8**	**251**	**0**	**165**	**14**	**72**	**22**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (November 4 to November 10, 2012)					Cumulative (Aug. 26, 2012 to November 10, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	4	1	2	1	0	19	2	14	3	4
5-19	1	0	1	0	1	13	0	9	4	1
20-44	4	1	2	1	0	23	5	12	6	1
45-64	1	0	1	0	0	22	1	16	5	4
65+	8	0	8	0	0	78	2	59	17	3
Unknown	0	0	0	0	0	0	0	0	0	0
Total	18	2	14	2	1	155	10	110	35	13

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

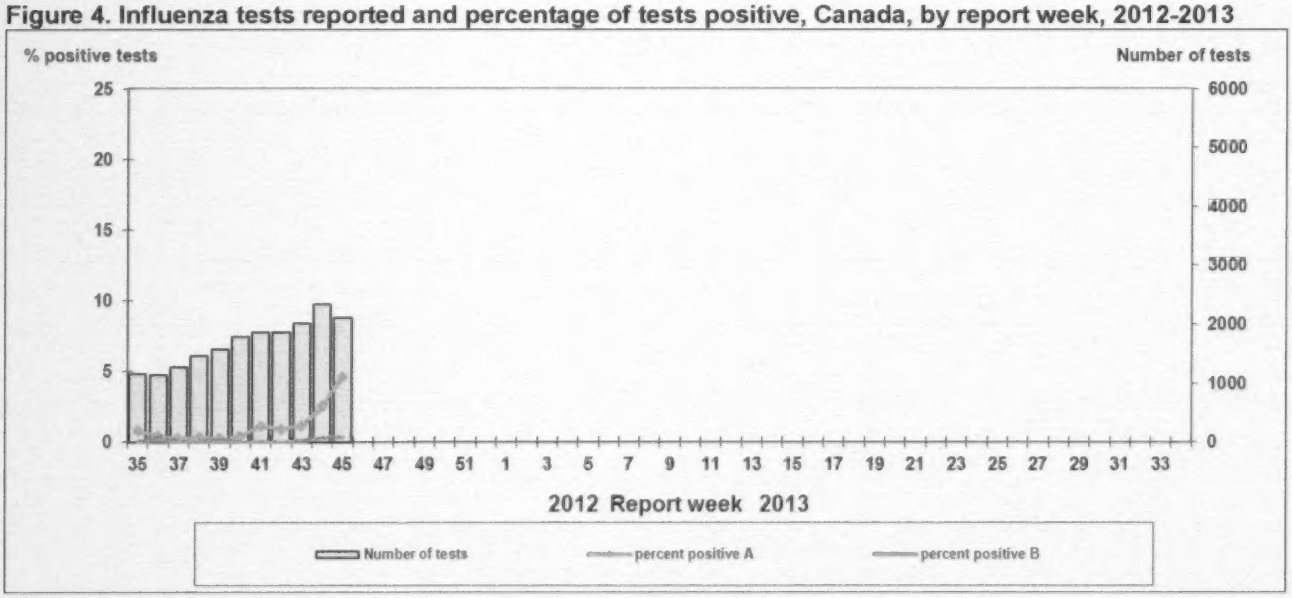
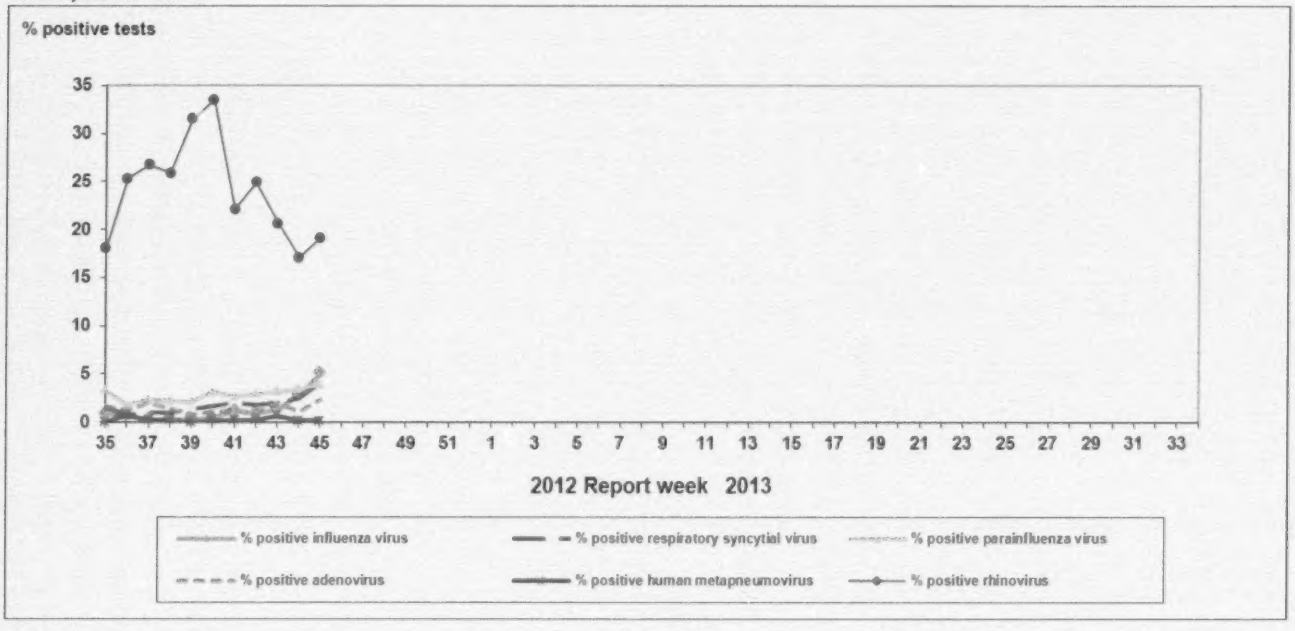


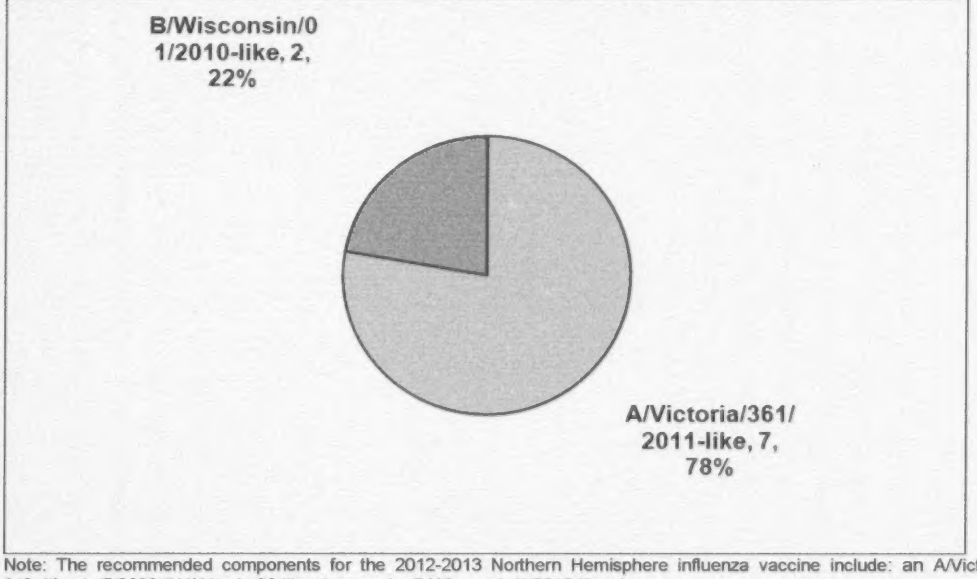
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 9 influenza viruses [7 A(H3N2) and 2 B]. The 7 influenza A(H3N2) viruses (from BC, ON and QC) were antigenically similar to the vaccine strain A/Victoria/361/2011. Both of the influenza B viruses (from ON and QC) were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 9



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

Since the beginning of the season, NML has tested 9 influenza viruses [7 A(H3N2) and 2 B] for resistance to oseltamivir and zanamivir and it was found that all were sensitive to oseltamivir and zanamivir. A total of 21 influenza A(H3N2) viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

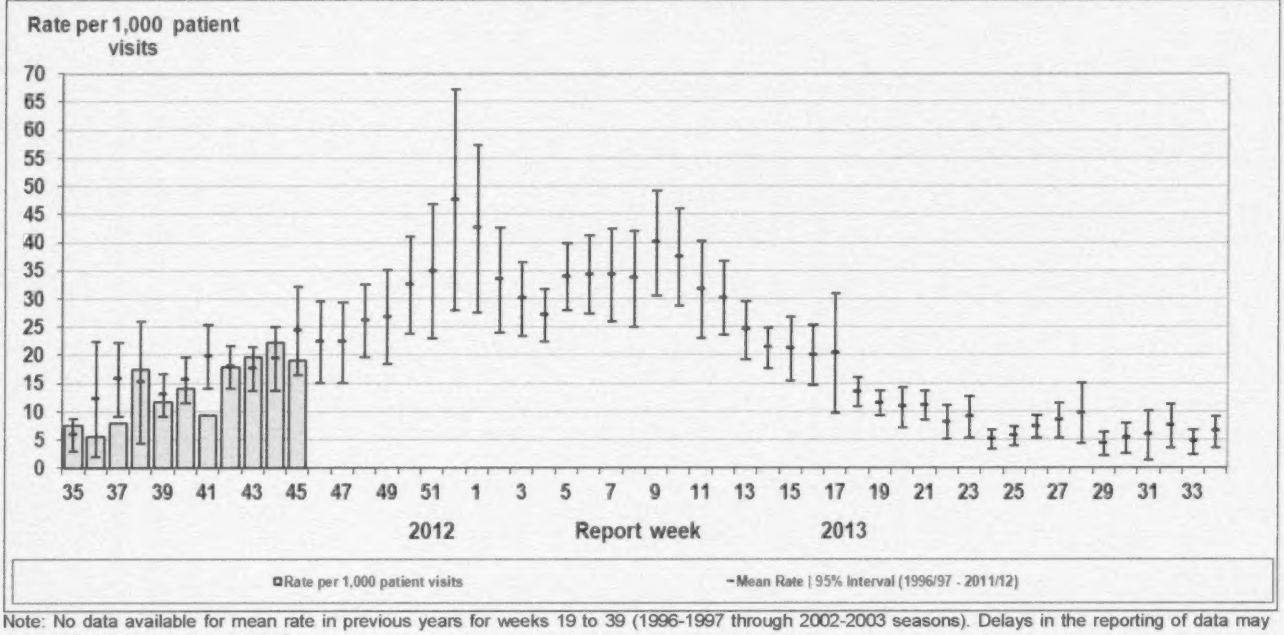
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	7	0	7	0	21	21 (100%)
A (H1N1)	0	0	0	0	0	0
B	2	0	2	0	NA*	NA*
TOTAL	9	0	9	0	21	21 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 45 decreased from the previous week from 22.2 to 19.1 ILI consultations per 1,000 patient visits; but remains within the expected levels for this time of year (Figure 7). The highest consultation rates were observed in children 5-19 years of age (31.3/1,000) and adults 20-64 years of age (17.6/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 45, one new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalization was reported by the Immunization Monitoring Program Active (IMPACT) network. The case was reported in BC, in a child 10-16 years of age with unsubtyped influenza A.

Since the start of the 2012-13 season, a total of three laboratory-confirmed influenza-associated paediatric hospitalizations have been reported by the IMPACT network. Two cases were between 10-16 years of age, and one between 5-9 years of age. In all three cases, influenza A was detected [two A(H3N2), one influenza A(unsubtyped)]. One case is reported to have had underlying conditions, and this case was admitted to the ICU.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)*
In week 45, 20 laboratory-confirmed influenza A-associated hospitalizations were reported [ON(9), AB(11)]. Of these, 4 were aged between 1-4 years, 1 between 20-44 years, 2 between 45-64 years, and 13 were aged ≥65 years. Of these hospitalizations, 15 were due to Influenza A(H3N2) and five were due to influenza A (unsubtyped). No deaths were reported this week. Of the 11 cases with available data, none were admitted to the Intensive Care Unit (ICU).

To date this season, 49 influenza A-associated hospitalizations have been reported from four provinces (AB, MB, ON & NL). The majority of the cases (75.5%; 37/49) were ≥ 65 years of age. Of the influenza A hospitalizations for which subtype was available (n=40), 7.5% (3/40) were due to influenza A(H1N1)pdm09 and 92.5% (37/40) were due to A(H3). Of the 29 cases with available data, there have been four hospitalizations for which admission to ICU was required (from NL and AB). To date this season, one influenza A(H3)-associated death has been reported (week 36) in a hospitalized case who was ≥ 65 years of age.

*Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since November 9, 2012.
World Health Organization influenza update

United States: During week 44, influenza activity increased in some areas in the United States, but with activity similar to the previous week. The state of Maine reported regional influenza activity, with 8 other states across the country reporting local activity. The proportion of tests positive for influenza viruses was similar in week 44 (6.9%) compared to the previous week. Of the positive influenza detections reported during week 44, 60% were positive for influenza A viruses. Of the 71 influenza A viruses for which subtype information was available, 97% were A(H3) and 3% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 45 influenza viruses: 9 A/Victoria/361/2011-like; 1 A/California/7/2009-like; 24 B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 11 influenza B belonging to the B/Victoria lineage.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 45, influenza activity in Europe remained low with several countries reporting sporadic influenza detections. A total of 95 specimens tested positive for influenza in week 45, of which 58.9% were for influenza A viruses. Of the 33 influenza A viruses for which subtype information was available, 36.4% were A(H3) and 63.6% were A(H1N1)pdm09. Since week 40, 311 specimens of influenza viruses have been typed: 66% were influenza A and 34% were influenza B. Among the 121 influenza A specimens for which subtype information was available: 53% were A(H3) and 47% were A(H1N1)pdm09. In general ILI and ARI consultation rates remain low and stable.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No cases of human avian influenza A/H5N1 infection have been reported by the WHO since August 10, 2012.
WHO Avian influenza situation updates

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported this week.

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.